R10324573

Concurrence Sheet

CCN: 098999

Required Reviewers

Title	Name	Concurrence required (Check appropriately)	Initials	Date	Order
Project Manager	J. P. Betts	☒	JPB	11/9/04	
Manager of Facilities	A. Beckman	☐			
Manager of Functions	C. M. Albert	☐			
Deputy Project Director	S. F. Piccolo	☐			
Engineering Manager	R. J. Tosetti	☐			
E&NS Manager	F. Beranek	☒	FB	11/4/04	
Process Operations Manager	K. J. Rueter	☐			
Construction Manager	J. C. Dougherty	☐			
Project Controls Manager	D. S. Hardin	☐			
Business Manager	C. E. Rogers	☒	CER	11-8-04	
Contracts Manager	J. M. Armstead	☒	JMA	11-4-04	
QA Manager	G. T. Shell	☐			
HLW Area Project Manager	P. W. Schuetz	☐			
LAW / BOF Area Project Manager	W. T. Clements	☐			
Pretreatment Area Project Manager	R. E. Lawrence	☐			
Lab Area Project Manager	P. J. Keuhlen	☐			
Research and Technology Manager	W. L. Tamosaitis	☐			
Operations Manager	M. N. Brosee	☐			
Acquisition Services Manager	K. M. Chalmers	☐			
BNI Legal	D. M. Curtis	☐			
Special Projects Manager	H. N. Taylor	☐			

Additional Reviewers

Title	Name	Initials	Date	Order

W. R. Spezialetti — *Print/Type Applicable Line Manager's Name* — *Signature* — 11/3/04 *Date*

T. B. Ryan — *Print/Type Originator's Name* — *Signature* — ~~11~~/3/04 *Date* or 11/3/03

U.S. Department of Energy
Office of River Protection
Mr. R. J. Schepens
Manager
P.O. Box 450, MSIN H6-60
Richland, Washington 99354

CCN: 098999

NOV 09 2004

Dear Mr. Schepens:

CONTRACT NO. DE-AC27-01RV14136 – TRANSMITTAL OF DECISION TO DEVIATE FROM THE AUTHORIZATION BASIS FOR THE HANFORD TANK WASTE TREATMENT AND IMMOBILIZATION PLANT (24590-LAW-DTD-ENS-04-0004, REVISION 0)

Reference: 1) CCN 098998, Letter, from J. P. Henschel, BNI, to R. J. Schepens, ORP, "Transmittal for Approval: Authorization Basis Amendment Request 24590-WTP-SE-ENS-03-051, Revision 0, *Incorporation of Ammonia Storage Tanks at the BOF Facility,*" dated October 29, 2004.

2) CCN 094059, Letter, from J. P. Henschel, BNI, to R. J. Schepens, ORP, "Transmittal of Decision to Deviate from the Authorization Basis for the Hanford Tank Waste Treatment and Immobilization Plant (24590-LAW-DTD-ENS-04-0001, Revision 0)," dated September 15, 2004.

The purpose of this letter is to provide notification to the U.S. Department of Energy (DOE), Office of River Protection (ORP) of a decision to deviate (DTD) from the authorization basis for the Hanford Tank Waste Treatment and Immobilization Plant. This DTD is being processed in accordance with the Preliminary Safety Analysis Report (PSAR) and project procedures. This letter satisfies the 72-hour written notification requirement.

Authorization Basis Amendment Request (ABAR) 24590-WTP-SE-ENS-03-051, Revision 0, was submitted to ORP via Reference 1. The ABAR replaced the existing 1,200-gallon ammonia tank in the High-Level Waste facility with two 6,000-gallon ammonia vessels. Since ABAR 24590-WTP-SE-ENS-03-051 is not yet approved by DOE, a DTD is necessary to allow procurement of the dilution skid equipment for the Selective Catalytic Reducer (SCR) and the associated anhydrous ammonia supply to the dilution skid. ABAR 24590-WTP-SE-ENS-03-051 addresses the impacts of the SCR anhydrous ammonia supply and SCR ammonia injection on the Low-Activity Waste safety envelope.

DTD 24590-LAW-DTD-ENS-04-0004, Revision 0, describes a deviation from the *Preliminary Safety Analysis Report to Support Construction Authorization; LAW Facility Specific*

Information, 24590-WTP-PSAR-ESH-01-002-03, Revision 1. Even though the reconciliation date for this DTD is February 2, 2005, approval of ABAR 24590-WTP-SE-ENS-03-051, Revision 0, is requested by December 13, 2004, to reconcile the first DTD (24590-LAW-DTD-ENS-04-0001) (Reference 2), which was approved to support early procurement and installation of ammonia transfer lines in the Balance of Facility.

Safety Evaluation 24590-WTP-SE-ENS-04-0201, Revision 0, is included as an attachment to the DTD.

This DTD will be tracked in the Recommendation and Issues Tracking System to ensure attention to process and closure schedules.

Please contact Mr. Mark Platt at 371-3365 for any questions or comments on this transmittal.

Very truly yours,

J. P. Henschel
Project Director

TBR/slr

Attachment - Decision to Deviate 24590-LAW-DTD-ENS-04-0004, Revision 0, plus
accompanying Safety Evaluation 24590-WTP-SE-ENS-04-0201, Revision 0

cc:

Armstead, J. M. w/o	WTP	MS14-3B
Beranek, F. w/o	WTP	MS4-A1
Clements, W. w/o	WTP	MS12-2A
Eschenberg, J. w/a (1 hard copy and 1 electronic copy)	ORP	H6-60
Garrett, R. L w/o	WTP	MS4-A1
Hanson, R. w/a	WTP	MS12-2B
Henschel, J. P. w/o	WTP	MS14-3C
Medsker, M. w/a	WTP	MS12-2B
Miller, L. F. w/a	ORP	H6-60
Pisarcik, D. J. w/a	WTP	MS4-A2
Platt, M. A. w/a	WTP	MS4-B1
Rogers, C. E. w/o	WTP	MS14-3C
Ryan, T. B. w/a	WTP	MS4-B1
Sautman, M. T. w/a	DNFSB	A5-17
Schuetz, P. W. w/o	WTP	MS5-I
Short, J. J. w/o	ORP	H6-60
Spezialetti, W. R. w/o	WTP	MS4-B1
Tosetti, R. J. w/o	WTP	MS4-A2
DOE Correspondence Control w/a	ORP	H6-60
PDC w/a	WTP	MS11-B

Decision to Deviate
24590-LAW-DTD-ENS-04-0004, Revision 0, plus
Accompanying Safety Evaluation
24590-WTP-SE-ENS-04-0201, Revision 0

Decision to Deviate from the Safety Envelope

DTD No: 24590-LAW-DTD-ENS-04-0004 Rev No: 0

The approvers of this form have determined that it is critical to project progress to temporarily deviate from the safety envelope as allowed in RL/REG-97-13. This temporary situation will be corrected no later than 90 days from the date this form is approved by the Area Project Manager. Environmental and Nuclear Safety (E&NS) is responsible for notifying DOE verbally within 24 hours, and in writing (including a copy of this form) within 3 working days, after the DTD is approved.

Safety Evaluation No. 24590-WTP-SE-ENS-04-0201, Rev. 0

Identify the specific design changes that are not in compliance with the safety envelope (include the document numbers of affected design documents).

ABAR (24590-WTP-SE-ENS-03-051) has been submitted that authorizes the addition of two 6000-gallon anhydrous ammonia vessels. This ABAR also includes the change from Urea to anhydrous ammonia as the feed to the Selective Catalytic Reducer (SCR) in LAW Vitrification.

Affected Design Documents		
Number	**Rev.**	**Title**
24590-WTP-3PS-MBTV-T0001	1	ENGINEERING SPECIFICATION FOR THERMAL CATALYTIC OXIDIZERS/REDUCERS
24590-LAW-MKD-LVP-00012	2	24590-LAW-MX-LVP-SKID-00002 - LAW CATALYTIC OXIDIZER/REDUCER

Planned Design Documents*		
Number	**Rev.**	**Title**

* These documents have not been issued at the time the DTD is issued, but it is anticipated these will be issued during the 90-day window.

Describe the specific deviation from the safety envelope associated with implementing the change. Identify the AB document(s) and the affected section(s).

The addition of anhydrous ammonia thru a dilution skid will deviate from the Authorization Basis. This decision to deviate allows the design and procurement of the LAW SCR including the dilution skid and anhydrous ammonia supply equipment within the LAW facility. The current SED does not include the use of anhydrous ammonia in the LAW Facility. The areas being deviated from are consistent with ABAR 24590-WTP-SE-ENS-03-051. See attached Safety Evaluation 24590-WTP-SE-ENS-04-0201 (attached).

Affected AB Documents			
Number	**Rev.**	**Title**	**Section**
NA	NA	NA	NA

In addition to the Safety Evaluation referenced above, perform an evaluation to determine the following:

☒ The specific design changes do not cause or threaten imminent danger to the workers, the public, or the environment from radiological, nuclear, or chemical hazards.

Prepared by:

Robert Hanson — *Print/Type Name*

Signature

10/29/04 — *Date*

Decision to Deviate from the Safety Envelope

DTD No: 24590-LAW-DTD-ENS-04-0004 Rev No: 0

Decision to deviate from the safety envelope concurred with by:

Sean Sweeney ADS / DEM Staff Supervisor *(Print/Type Name)*	*Signature*	11/1/04 *Date*
Fred Beranek E&NS Manager *(Print/Type Name)*	Signature	11/2/04 *Date*

NOTE: E&NS is responsible for the 24-hour verbal and 3-day written notifications to DOE-OSR as described above.

Decision to deviate from the safety envelope approved by:

Janet Roth APEM / DEM *(Print/Type Name)*	Janet Kay Roth *Signature*	11/03/04 *Date*
Bill Clements Area Project Manager *(Print/Type Name)*	*Signature*	11/04/04 *Date*

Attachment - Safety Evaluation 24590-WTP-SE-ENS-04-0201, Rev. 0

Safety Evaluation For Design

Safety Evaluation No.:	24590-WTP-SE-ENS-04-0201	Rev. # 0
EDR No.:	N/A	Rev. # N/A
Design Documents Evaluated:	24590-LAW-DTD-ENS-04-0004	Rev. # 0
Consists of Parts: ☒ 1 ☐ 2		
Title: Design and Procurement of SCR Dilution Skid Equipment		

Part 1 Safety Evaluation

Complete Part 1 for all design changes requiring this form. Refer to Appendix 4 of 24590-WTP-GPP-SREG-002 for guidance. Part 1 determines whether the design change requires an ABAR. For all questions, provide a "Basis" for the answer in sufficient detail that a knowledgeable individual can identify the technical issues considered and the basis for the determinations. If the answer to questions 2, 3, or 4 is "Yes", an ABAR is required. "Broad scope" and SRD changes also require an ABAR. A "Yes" answer to questions 5 or 6 means that the design change is unacceptable and must be withdrawn and re-engineered. For any change that does cause an SED change, prepare a redline markup of the applicable sections of that document. For BNI-approved changes, print the SE, sign, obtain concurrence signatures, including the affected FNS Supervisor or Regulatory Safety Manager, and return the form to the design document originator for forwarding to PDC with the evaluated design document. Provide a copy of an original of the completed SE and SED redline markup to the E&NS AB Coordinator.

***Note:** The SED represents the currently approved PSAR safety envelope sections, plus approved changes.*

Description of change:

DTD 24590-LAW-DTD-ENS-04-0004 allows for the procurement and continued design of the dilution skid equipment (LVP-SKID-00003) for the selective catalytic reducer SCR (LVP-SKID-00002) and the associated anhydrous ammonia supply to the dilution skid. ABAR 24590-WTP-SE-ENS-03-051 has been prepared and submitted to DOE to cover the impacts of the SCR anhydrous ammonia supply and SCR ammonia injection on the LAW safety envelope. The DTD allows for design and procurement to proceed during the DOE approval cycle for the ABAR. The DTD covers all equipment associated with the dilution skid, and the anhydrous ammonia supply equipment within the LAW facility.

The ISM process has been completed on all the items subject to this DTD. The ISM hazards analysis and controls selection for the ammonia supply line and dilution skid are documented in meeting minutes CCN #082528. ABAR 24590-WTP-SE-ENS-03-051 summarizes the postulated hazards and documents the functional requirements for the controls selected in the ISM meetings. There are no known open issues related to the ammonia supply line or dilution skid operation. There is therefore little project risk associated with continued design and procurement of ammonia supply and dilution skid components.

		N/A	YES	NO
1.	Does the change affect the safety envelope (SRD and applicable facility SED[s]), or is it a "broad scope" change? (Do not answer this question if already answered on corresponding safety screening/EDR)	☐	☒	☐
	Basis: The currently approved SED does not specifically address hazards or needed safety controls for the SCR anhydrous ammonia delivery system or the SCR ammonia/air mixing equipment (dilution skid LVP-SKID-00003). The impacts to the facility safety envelope associated with the equipment that is the subject of the DTD are covered in ABAR 24590-WTP-SE-ENS-03-051. This ABAR has been submitted to DOE for approval. The DTD allows for procurement and design of the ammonia supply and dilution equipment to proceed while the ABAR is in the approval process. Proceeding with the design during the approval process is desired to minimize schedule impacts. The ABAR identifies the necessary page changes to the SED to cover the hazards and controls associated with the SCR ammonia supply and dilution skid components. These page changes will be incorporated into the SED after the ABAR has been approved. There are no known open issues related to the dilution skid and LAW ammonia supply equipment.			
2.	Does the change create a new DBE?		☒	☐
	Basis: The ammonia supply poses the potential to create a new DBE for the LAW facility. ABAR 24590-WTP-SE-ENS-03-051 identifies accident scenarios that can result in a release of			

Safety Evaluation For Design

Safety Evaluation No.:	24590-WTP-SE-ENS-04-0201	**Rev. # 0**
EDR No.:	N/A	**Rev. # N/A**

		YES	NO
	ammonia inside the LAW facility. The ABAR in review includes page changes which describe the new ammonia leak DBE. Controls are identified in the ABAR to adequate address the ammonia leak hazard. The ammonia leak hazard and controls will be incorporated into the safety envelope document when the ABAR is approved.		
3.	Does the change result in more than a minimal (≥10 %) increase in the frequency or consequence of an analyzed DBE as described in the SED?	☒	☐
	Basis: The dilution skid provides a potential new pathway for offgas NOx to be released inside the building. Loss of dilution air flow can allow offgas NOx from the pressurized offgas system to flow back out the dilution air supply path into the secondary offgas room. In addition, excessive dilution air flow can overwhelm the offgas system and cause pressurization of the melter plenums, resulting in a release of NOx backwards through the inleakage paths into the melter. These new mechanisms are covered in the ABAR under review. Controls are defined in the ABAR to adequately address both these mechanisms. The new pathway does not increase the consequences of the bounding offgas release developed in the ABAR.		
4.	Does the change result in more than a minimal decrease in the safety functions of important-to-safety SSCs or change how a Safety Design Class, Safety Class, or Safety Significant SSC meets its respective safety function?	☒	☐
	Basis: The two primary ITS safety functions for the secondary offgas system are to confine offgas (directing it through an elevated stack) and to maintain an open flow path for offgas (to prevent pressurization of the melter plenums). No mechanisms have been identified for the dilution skid equipment to significantly degrade the offgas system confinement function or to cause direct blockage of offgas flow. As discussed in item 3, however, excessive dilution air or ammonia flow can overwhelm the offgas system and cause pressurization of the melter plenums. This mechanism is covered in the ABAR under review. Dilution air and ammonia supply isolation valves are closed by interlock on detection of high differential pressure across the SCR skid or high melter plenum pressure. Low temperature operation of the SCR has been postulated as a potential initiator for ammonium nitrate deposition in the SCR, resulting in plugging of the catalyst media. Controls to mitigate plugging of the SCR are covered in ABAR 24590-WTP-SE-ENS-04-0105 (approved by DOE letter 04-WTP-224 via CCN 101030). The approved ABAR requires the catalytic oxidizer/reducer equipent skid (LVP-SKID-00002) to be bypassed on detection of high DP across the skid. The approved authorization basis thus already covers the potential plugging hazard associated with ammonia injection at the SCR. As discussed above, ABAR 24590-WTP-SE-ENS-03-051 (in review) ensures the ammonia supply and dilution air supplies are isolated on detection of high DP across the catalyst skid, ensuring ammonia and dilution air do not contribute further to offgas system pressurization when the skid bypass is activated.		
5.	Does the change result in a noncompliance with applicable laws and regulations (i.e., 10 CFR 820, 830, and 835) or nonconformance with top-level safety standards (i.e., DOE/RL-96-0006)?	☐	☒
	Basis: 10 CFR 820 – *Procedural Rules for DOE Nuclear Activities*, sets forth the procedural rules for conduct of persons involved in DOE nuclear activities, in particular to achieve compliance with DOE nuclear safety requirements. The proposed changes are not related to any compliance, violation, or enforcement issue, exemption from safety requirements, or reporting of supplier defective products or inaccurate or incomplete information. 10 CFR 830 – *Nuclear Safety Management*, requires establishment and maintenance of safety bases and classifies QA work process requirements applicable to standards and controls adopted to meet regulatory or contract requirements that may affect nuclear safety. This included certain		

Safety Evaluation For Design

Safety Evaluation No.:	24590-WTP-SE-ENS-04-0201	**Rev. #** 0
EDR No.:	N/A	**Rev. #** N/A

		YES	NO
	aspects of technical safety requirements (TSRs), unreviewed safety questions, facility safety basis, facility ITS SSCs, and the quality assurance program (QAP). The proposed changes are consistent with the requirements of 10 CFR 830 for ITS SSCs. 10 CFR 835 – *Occupational Radiation Protection*, sets forth rules to establish radiation protection standards, limits, and program requirements for protecting individuals from radiation resulting from conduct of DOE activities. The proposed changes do not affect the radiation protection program or challenge any requirements of 10 CFR 835. 24590-WTP-SRD-ESH-01-001-02, *Safety Requirements Document*, Volume II - The proposed changes conform to the SRD, as modified by this ABAR.		
6.	Does the change fail to provide adequate safety?	☐	☒
	Basis: ABAR ABAR 24590-WTP-SE-ENS-03-051 has been prepared and submitted to the DOE to cover the impacts of the DTD equipment on the safety envelope. The ABAR covers the hazards and controls associated with delivery of anhydrous ammonia through the ammonia supply lines within the LAW facility, with mixing of ammonia and dilution air at skid LVP-SKID-00003, and with injection of the ammonia/air mixture into the SCR catalyst bed. The DTD allows for design and procurement of ammonia supply and dilution skid (LVP-SKID-00003) components to proceed during the DOE approval cycle. The ISM process is complete on this equipment. There are no known remaining open safety issues associated with this equipment. The proposed design is consistent with the safety requirements outlined in the ABAR in review. The project risk associated with continued design and procurement is considered to be minimal.		

Affected Authorization Basis and/or SED Documents:

Title	Document Number	Rev	Section
N/A	N/A	N/A	N/A

Safety envelope change required? ☐ Yes ☒ No

ABAR required? ☐ Yes ☒ No

Sign below and return form to design document originator. If an ABAR is required, sign Part 1, complete Part 2, and submit both to the E&NS AB Coordinator.

Safety Evaluation Preparer:	Brett Hall *Print/Type Name*	Brett Hall *Signature*	10/29/04 *Date*
Design Document Originator/Supervisor	Bob Hanson *Print/Type Name*	 *Signature*	10/29/04 *Date*

Signature of Originator/Supervisor concurs that description of change is accurate and complete

FNS Supervisor or Regulatory Safety Manager:	Mark Medsker *Print/Type Name*	Mark A. Medsker *Signature*	10/29/04 *Date*

Safety Evaluation For Design

Safety Evaluation No.:	24590-WTP-SE-ENS-04-0201	**Rev. #** 0
EDR No.:	N/A	**Rev. #** N/A

Attachments: (page changes for SED changes)

Page changes associated with the anhydrous ammonia supply and dilution skid (LVP-SKID-00003) are covered in ABAR 24590-WTP-SE-ENS-03-051.